

FIRST RECORD OF NYCTERIBIIDAE (DIPTERA) IN VIRGINIA, AND A DISCUSSION OF THE HOST SPECIFICITY AND DISTRIBUTION OF *BASILIA BOARDMANI*¹

Christopher S. Hobson²

ABSTRACT: The family Nycteribiidae (Diptera) is recorded from Virginia for the first time. Four specimens of *Basilia boardmani* were collected from *Myotis austroriparius* at one site in southeastern Virginia during August 1996. Previous records of *B. boardmani* have been from *M. austroriparius* in Florida and Illinois. The identification of *Myotis lucifugus* by H. B. Morlan as a host for *B. boardmani* as reported in Peterson (1960), was shown to be erroneous by Davis and Rippey (1968). *Basilia boardmani* seems to be host specific to *M. austroriparius* in the eastern United States. Distributional information available for *B. boardmani* shows that the range of this species coincides with that of *M. austroriparius*.

In the eastern United States, the family Nycteribiidae (Diptera) is represented by one genus and three species (Whitaker and Easterla, 1974). Of these, only one, *Basilia boardmani* Rozeboom, is typically associated with *Myotis austroriparius* (Rhoads), commonly known as the southeastern myotis. It was first described from *M. austroriparius* from Florida (Rozeboom, 1934), where Rice (1957) reported it to be common, although less conspicuous than the streblid *Trichobius major* Coquillett. It has since been reported from Georgia on bats collected by H. B. Morlan (Peterson, 1960) that were erroneously identified as *Myotis lucifugus* (LeConte) (Davis and Rippey, 1968), and most recently from *M. austroriparius* from Illinois (Parmalee, 1955). Whitaker and Easterla (1974) provided the most recent summary of distributional information for *B. boardmani*.

On 8 August 1996, several colleagues and I captured 31 individuals of *M. austroriparius* in mist nets along the Blackwater River in Southampton County, Virginia. These bats were from a large maternity colony (372 bats counted) occupying a cavity in a large swamp tupelo (*Nyssa biflora*). This is the second record of *M. austroriparius* for Virginia and the first known maternity colony of this bat in the state (Hobson, 1998). Both adults and juveniles were captured, and each was briefly examined for ectoparasites. Several batflies, family Nycteribiidae, and a single bat bug (*Cimex adjunctus* Barber, order Heteroptera) were collected. The batflies (3 m, 1 f) were identified as *B. boardmani* based on the keys presented by Peterson (1960) and Whitaker and Easterla (1974). Identifications were verified by F. C. Thompson.

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² Department of Conservation and Recreation, Division of Natural Heritage, 217 Governor Street, 3rd floor, Richmond, VA 23219.

The occurrence of *B. boardmani* on *M. austroriparius* in Virginia is of special interest because it further substantiates its host specific relationship with this bat and because it is the first record of any nycteribiid in the state extending the known range of the species approximately 995 km north from Georgia. Three specimens (2 m, 1 f) of *B. boardmani* have been deposited in the entomological collection of the U. S. National Museum of Natural History. The fourth, a male specimen, has been deposited in the entomological collection of the Field Museum of Natural History, Chicago.

Nearly all specimens of *B. boardmani* have been from *M. austroriparius*, although H. B. Morlan listed *M. lucifugus* as the host for specimens collected in Thomas County, Georgia (Peterson, 1960). This unvouchered record of *M. lucifugus* is highly questionable based on published range maps and additional review of the distribution of these two species of *Myotis* in the southeast by Davis and Rippy (1968). Several sources do not show *M. lucifugus* to occur anywhere near Thomas County, Georgia (Barbour and Davis, 1969; Harvey, 1992; Hamilton and Whitaker 1979), whereas others indicate that this species ranges as far south as the Georgia-Florida border (Burt and Grossenheider, 1976; Hall, 1981). Golley (1962) shows this species occurring in seven coastal plain counties in Georgia. However, all of the specimens reported from the coastal plain by him have been reidentified as *M. austroriparius* (Davis and Rippy, 1968), and records from southwestern Georgia are based on unvouchered records in a paper by Morlan (1952). It is particularly significant that Davis and Rippy (1968) found only *M. austroriparius* at Morlan's sampling site in Thomas County, Georgia, and that these authors state that it has not yet been established that *M. lucifugus* has ever occurred in coastal Georgia. From this information, it seems likely that *M. austroriparius* rather than *M. lucifugus* was the host from which nycteribiid flies were taken by Morlan in 1947. The first confirmed record of *M. austroriparius* in Georgia was that of Quay (1949), based on specimens he collected in Thomas County in 1944. Identification of these two *Myotis* species can sometimes be very difficult, particularly in the field.

If *B. boardmani* indeed parasitizes *M. lucifugus*, it would seem that the distribution of the parasite would coincide more closely with the distribution of that host. However, the little brown bat ranges well into eastern Canada and over much of the eastern and northeastern United States (Harvey, 1992; Barbour and Davis, 1969), and there are no known records for *B. boardmani* in any of these areas. In contrast, all known records of *B. boardmani* fall within the currently known range of *M. austroriparius*, and if Morlan's identification of the host was in error, then *M. austroriparius* would be the only known host for *B. boardmani*. Additional collections of dipteran ectoparasites from both *M. lucifugus* and *M. austroriparius* are needed to better determine the range and host specificity of *B. boardmani*.

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